



Field Service Bulletin

**Emcara LT102B-xx Series and LT130-xx Series PRD
Inspection and Replacement Campaign (Recall)**

**ENP-414
July 28, 2015**

1. Introduction

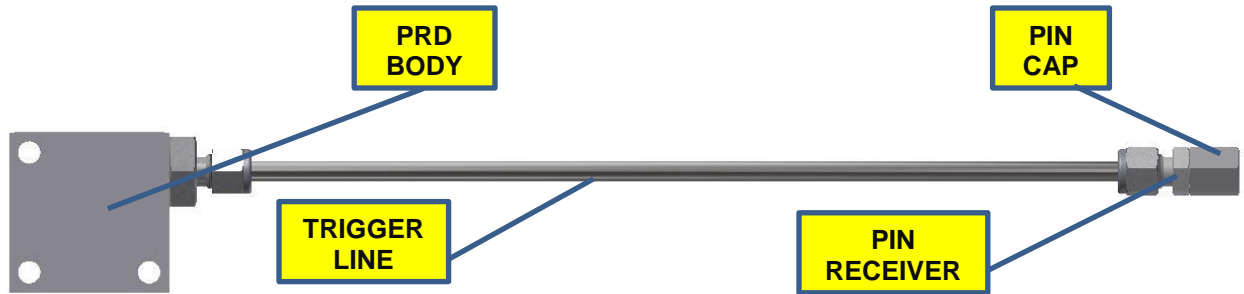


Figure 1 Typical Emcara area PRD affected by this recall. (Part number 10300658 shown).

New area pressure relief devices (PRDs) being used in the latest Agility Fuel Systems for trucks, tractors, refuse and bus vehicles are designed to improve safety by increasing the “protection zone” during a fire.

Two conditions that prevent proper pressure relief device (PRD) operation have been reported by the PRD manufacturer Emcara Gas Development, Inc. Agility is unaware of any injuries as a result of these issues.

To correct the first condition, the entire PRD body is removed and replaced, and for the second condition, the PRD taper pin is pushed in further if necessary.

The National Highway Traffic Safety Administration (NHTSA) ID number for this recall is 15E058.

1.1 Condition 1: Bore Surface Finish Issue Inside PRD Body

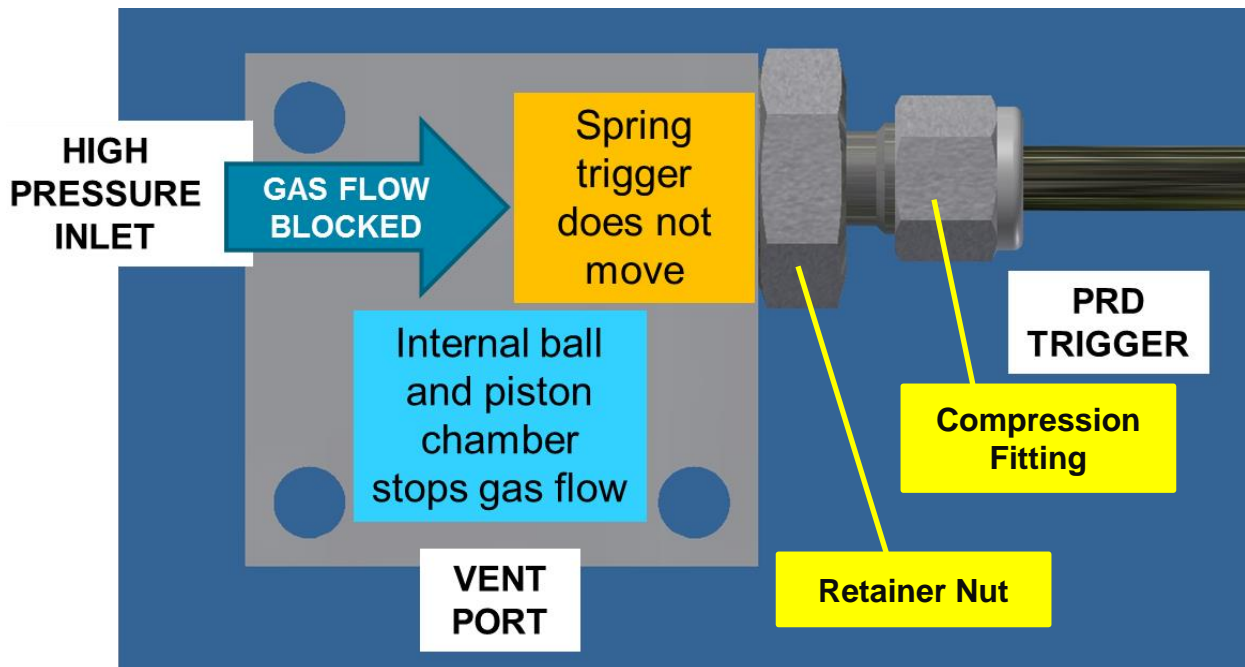


Figure 2 Rough surfaces in the trigger bore may cause the PRD to malfunction. PRDs in this condition will be replaced. See text for details.

The trigger bore surface finish may not have been manufactured to design specification, increasing the force needed to activate the PRD. In the case of a system/tank fire, the PRD may not activate.

The manufacturing date range for unacceptable bore surface finish is July 2014 to December 2014. The PRD body assembly is replaced with a new PRD body assembly.

1.2 Condition 2: Pin Issue at End of Trigger Wire/Pin Receiver

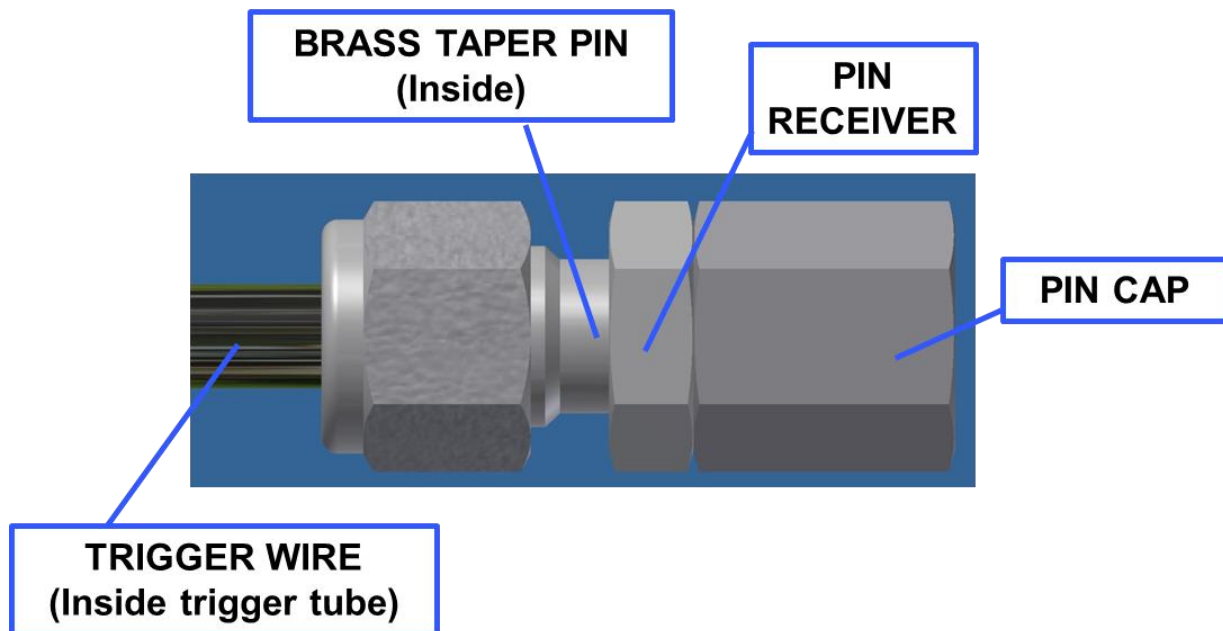


Figure 3 Improper trigger wire and pin assembly may cause the PRD to fail. PRDs in this condition may be repaired in the field, see text for details.

In Condition 2, the brass taper pin may not be holding the trigger wire securely. This can cause the trigger wire to slip, which may not allow the PRD to activate in a fire.

The manufacturing date range for the pin wire issue is July 2014 to December 2014. The trigger wire assembly is inspected and either repaired or the entire PRD is replaced.

2. Affected Units

Approximately 400 Vehicles:

- 306 trucks/tractors
- 95 buses
- A detailed list of vehicles and VINs is available
- In addition, Agility Fuel Systems Product Support Group (PSG) will act proactively contact customers with suspect PRDs.

PRDs:

- Emcara part numbers LT102B-xx and LT130-xx
- Date range: July 2014 to December 2014
- Serial number range, Bore Surface Finish Issue: LB00001119 to LB00003999
- Serial number range, Pin Issue: LB00001119 to LB00003000

Table 1 Agility Fuel Systems/Emcara Part Number Matrix

Agility Fuel Systems Part Number	Description	Emcara Part Number
10300658	PRD, In-line, 1/4-in. x 48-in. trigger	LT102B-25
10300659	PRD, In-line, 1/4-in. x 60-in. trigger	LT102B-26
10300660	PRD, In-line, 1/4-in. x 72-in. trigger	LT102B-18
10300661	PRD, In-line, 1/4-in. x 84-in. trigger	LT102B-27
10300662	PRD, In-line, 1/4-in. x 96-in. trigger	LT102B-28
10300663	PRD, In-line, 1/4-in. x 108-in. trigger	LT102B-30
10300674	PRD, In-line, 1/4-in. x 240-in. trigger	LT130-06

3. Tools, Materials and Required Parts

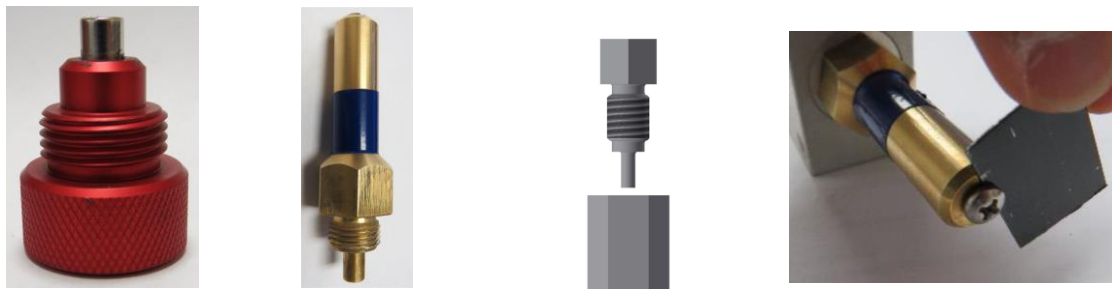


Figure 4 Special tools included in the field inspection tool kit, left to right: Magnetic ball holder, pressure simulator, pin cap tool and pressure simulator shim.

3.1 Tools

Part Number	Description
10301159	System Field Inspection Tools Kit A0003, see Fig. 4
Includes one each: Magnetic ball holder, pressure simulator, pin cap tool, pressure simulator shim.	

- 7/8-in. wrench
- Torque wrench
- 7/8-in. crows foot wrench
- Adjustable wrench
- 2 x 9/16-in. wrenches
- Leak detection solution
- O-ring lubricant, high pressure, silicone-based such as Parker Super-O-Lube

3.2 Parts Needed – One Per PRD

1. PRD block (body-only, no trigger), Agility Fuel Systems part number 10301158
2. O-ring, part number 10500014
3. Spare pin cap, Agility Fuel Systems part number 10301161 (if needed)

NOTE: If the internal ball bearing is lost, re-use a ball bearing from an old PRD body.



4. Procedure, Condition 1: Bore Surface Finish Issue – Remove and Replace PRD Body

Typical PRD locations are shown in Figures 5 through 8. Your exact configuration may vary from these pictures.



DANGER

Since PRDs are connected directly to the CNG cylinders, the fuel tube is always under full and constant cylinder pressure. You must depressurize and defuel the cylinders before performing work on the PRDs.

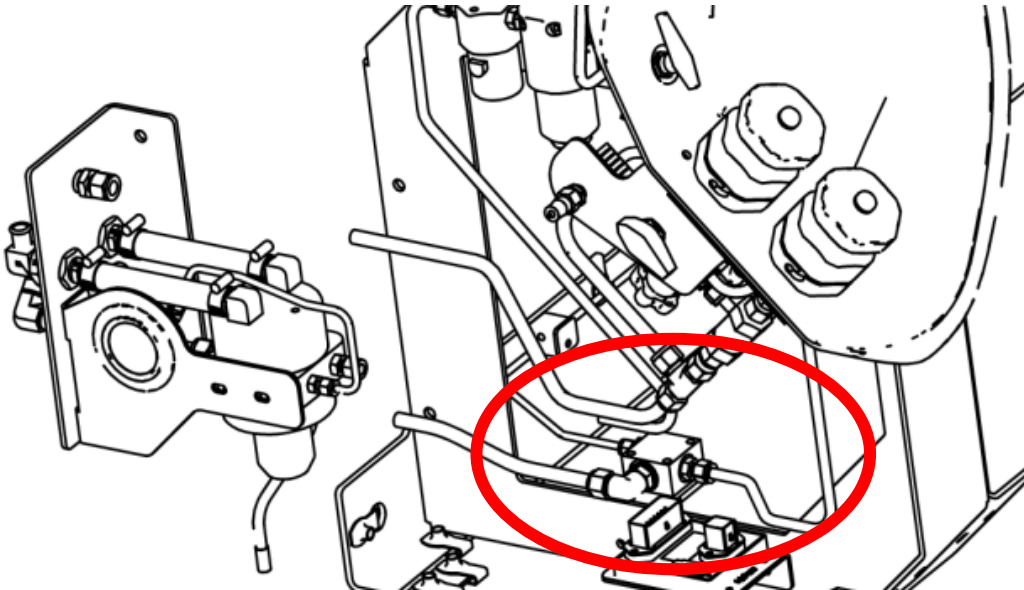


Figure 5 Side mount system area PRD location. Access to the PRD body, vent tube and trigger line fitting is needed. (FMM side shown, non-FMM side mount PRD location is similar.)

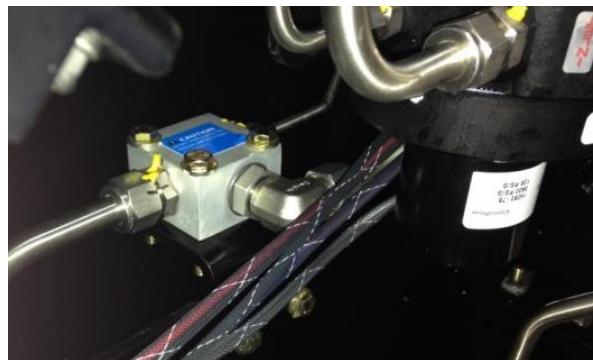


Figure 6 On side mount systems, the trigger line is a shaped 1/4-in. tube that runs along the rear of the system housing and fuel cylinder.

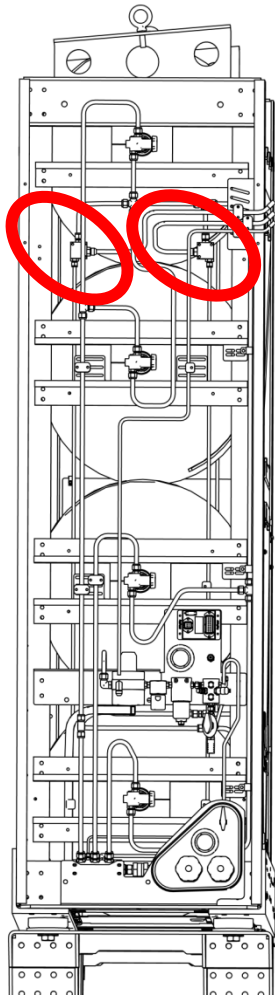


Figure 7 Left: Two area PRDs are used in this back of cab system. Center: FMM side view showing the PRD and PRD bracket. Right: Same system, opposite view. The silver-colored PRD bodies can be seen in the rear. The PRD trigger lines are the 3/8-in. shaped tubes running the length of the system cabinet. NOTE: The drawing on the left shows a four cylinder system and the photos show a three cylinder system. Plumbing is similar.

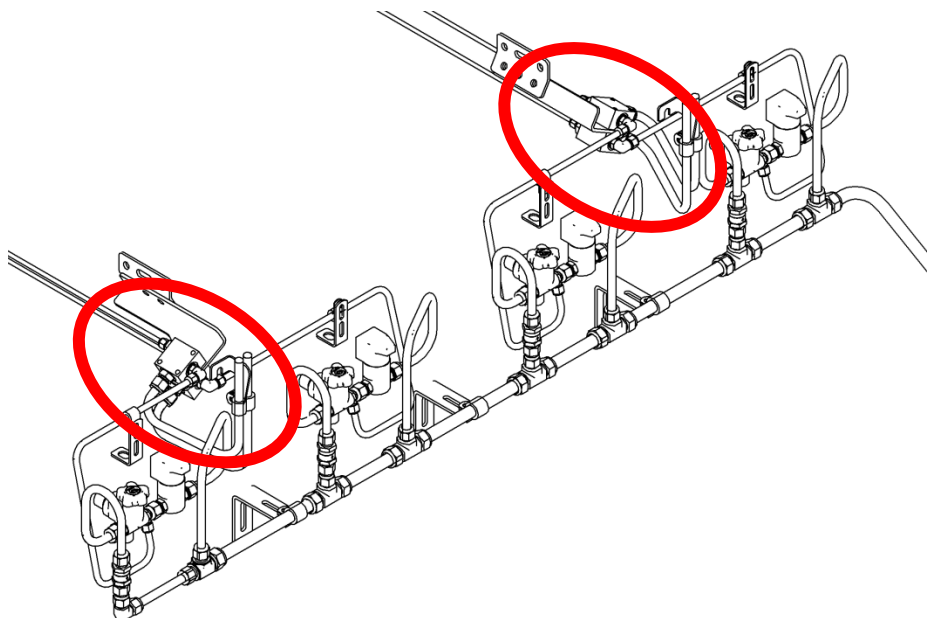


Figure 8 Roof-mount bus system layout. PRDs are mounted on brackets bolted to fuel system chassis frame rails. (Frame removed to improve clarity.)

1. Depressurize and **de-fuel** the system.
2. Save all mounting hardware since it will be reused.
3. Disconnect the fuel and vent lines from the PRD body.
4. Next, remove the three bolts that secure the PRD body to the system chassis bracket.
5. Use the magnetic tool to help keep the internal ball bearing in place:
 - a. Thread the magnetic tool into the vent port.
6. Rotate the PRD body to remove it from trigger line. Slide the trigger line assembly out of the PRD body.
 - a. Alternatively, the trigger tube compression nut can be loosened and then the retainer nut can be rotated out of the body.



CAUTION

DO NOT allow the trigger line (and wire) to twist or kink since this will ruin the trigger assembly and the entire PRD must be replaced.

7. Remove the magnetic tool to release the ball bearing.
 - a. Keep the ball bearing in a clean, safe place since it may be needed if the ball bearing from the replacement body becomes lost. (New PRD bodies come with the ball bearing.)
8. The trigger line assembly remains in place inside the fuel system.
 - a. Make sure the trigger line and internal wire remain clean and are not bent or damaged.
9. Inspect the trigger assembly (Figure 9) for contamination or damage. If debris or damage is found, the entire PRD must be replaced.

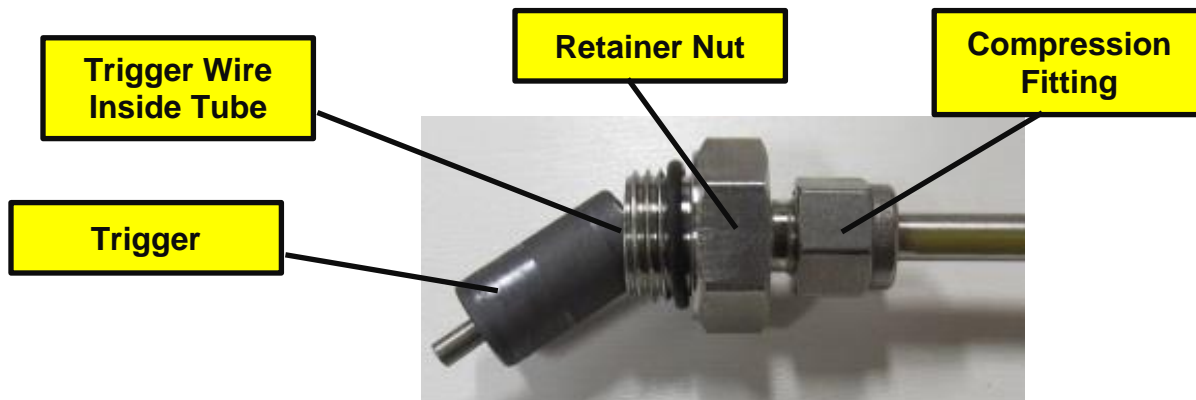


Figure 9 The trigger assembly. DO NOT allow the internal trigger wire to twist or kink since this will ruin the trigger assembly, and the entire PRD will have to be replaced.

10. Record the serial number of the body on the inspection record. Using a black, permanent marker, draw a large X on the defective PRD body and label.



Figure 10 Cross out the label on the PRD body.

IMPORTANT: Tag the PRD body with the system number and VIN for proper warranty reimbursement and CNG fuel system compliance record-keeping.

11. Use the PRD Record Form at the end of this bulletin to record vehicle and PRD information.

12. Re-Installing the Trigger Line Assembly into the New PRD Body



CAUTION

Do not apply excessive force on the trigger line and do not pull the retainer nut away from the trigger line. DO NOT allow the trigger line (and wire) to twist or kink since this will ruin the trigger assembly and the entire PRD must be replaced.

13. All ports on the new PRD bodies are capped when shipped from the factory. This keeps the PRD clean and ensures the internal ball bearing does not become lost. Keep all caps in place until the PRD is needed.
14. Inspect the new PRD body for contaminants or damage. Make sure the ball bearing is in place as shown in Figure 11.
15. Install the magnetic ball holder into the PRD body vent port. This will hold the ball bearing in place while the PRD is re-assembled and installed.

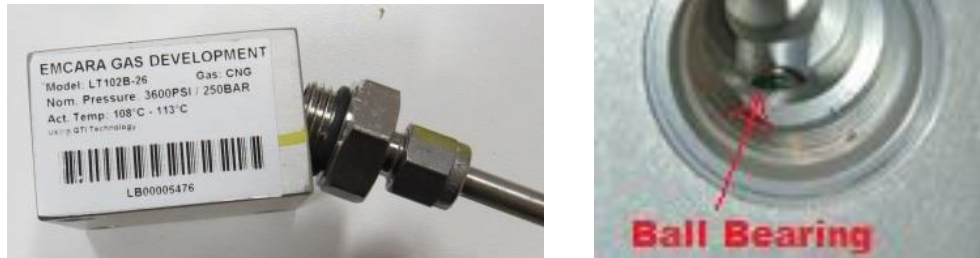


Figure 11 Left: Hold the PRD “label up” to trap the ball bearing in its bore. Right: Insert the ball bearing into the bore.

17. Replace and lubricate the new O-ring.
18. Loosen but **do not remove** the compression fitting from the retainer nut.
19. Insert the trigger assembly into the body.
20. Rotate the PRD body or the retainer nut only to install the trigger line against the retainer nut and the PRD body. **DO NOT allow the trigger line to twist.**
21. Torque the retainer nut as shown in Figure 12.
 - a. **Trigger Assembly Torque Specs:** Retainer nut to PRD body: 20 +/- 2 ft-lbs.



Figure 12 Use a torque wrench with a crow's foot to tighten the PRD retainer nut. Remember – DO NOT allow the trigger assembly/wire to twist.

22. Next, tighten the compression nut on the trigger line. Hand tight, then an additional quarter-turn.
23. Bolt the PRD body in its original location, using the original mounting hardware. Tighten the fasteners.
24. Insert the pressure simulator into the inlet of the PRD body. Ensure the screw pops out slightly when the simulator is bottomed against the PRD body as shown in Figures 13 and 14.



Figure 13 When the pressure simulator is fully inserted into the PRD body and the screw is sticking out, the ball bearing is correctly positioned.



Figure 14 Verify proper ball bearing capture using the metal shim as shown.

25. Using the metal shim, slip it into the space between the screw and the pressure simulator. If the shim is able to slide through the gap, the ball bearing is seated properly.
 - a. If the shim does not verify proper assembly, remove the trigger assembly and stem, and repeat the process, making sure the ball bearing is properly seated.
26. **If the PRD is an LT102B**, follow the Pin Issue Procedure in Section 5 **prior to** completing the following steps:
 - a. Re-install fuel and vent lines into the PRD body.
 - b. Pressurize the system with some fuel so a leak test can be performed.
 - c. Perform a leak test with leak detection solution and repair any leaks.
 - d. Return the vehicle to service.

Remember to mark and track all information for the warranty claim procedures. Package and return the PRD bodies and the record sheet to Agility Fuel Systems as instructed in Section 6.

5. Procedure, Condition 2: Pin Issue – Inspect and Repair or Replace as Needed



DANGER

Since PRDs are connected directly to the CNG cylinders, the fuel tube is always under full and constant cylinder pressure. You must **depressurize and defuel** the cylinders before performing work on the PRDs.

PRDs with the trigger line “pin issue” may be inspected and repaired if necessary to ensure proper operation. A special “pin tool” is used to verify the brass taper pin captures the trigger wire securely.



CAUTION

Do not apply excessive force on the trigger line and do not pull the retainer nut away from the trigger line. When removing or installing the pin cap, spin the cap while holding the pin receiver steady. **DO NOT** allow the trigger line (or wire) to twist or kink since this will ruin the trigger assembly and the entire PRD must be replaced.

NOTE:

Remove the bottom cover to access the PRD in side mount systems as shown in Figure 15.

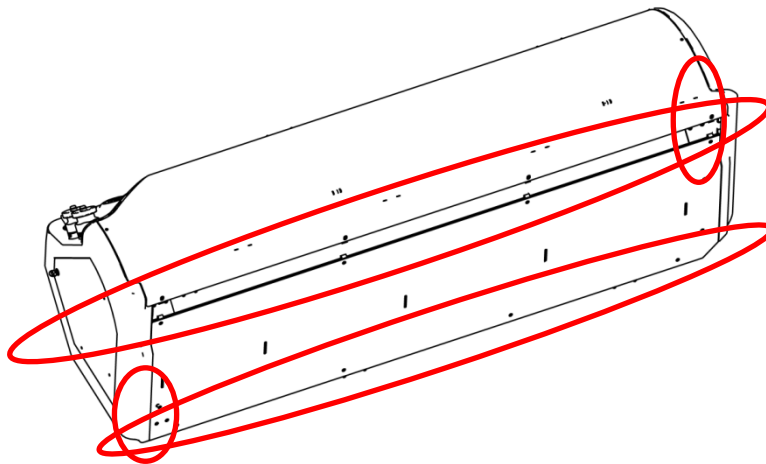


Figure 15 Side mount systems: Working under the vehicle, remove the bottom cover to gain access to the PRD and trigger line.

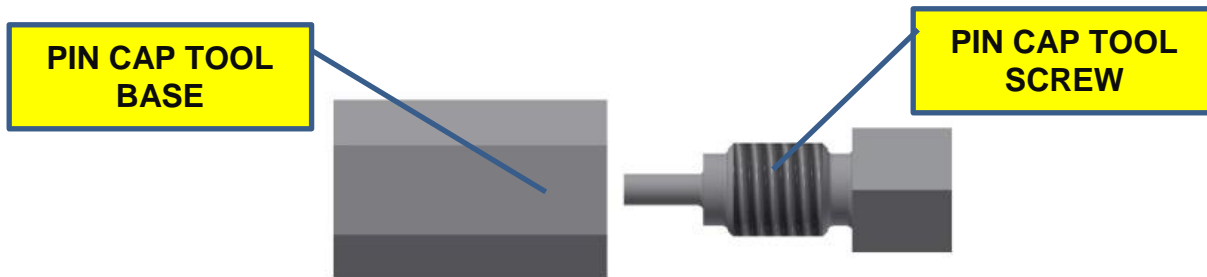


Figure 16 The pin cap tool is used to push the tapered brass pin into the pin receiver, wedging the trigger wire into place.

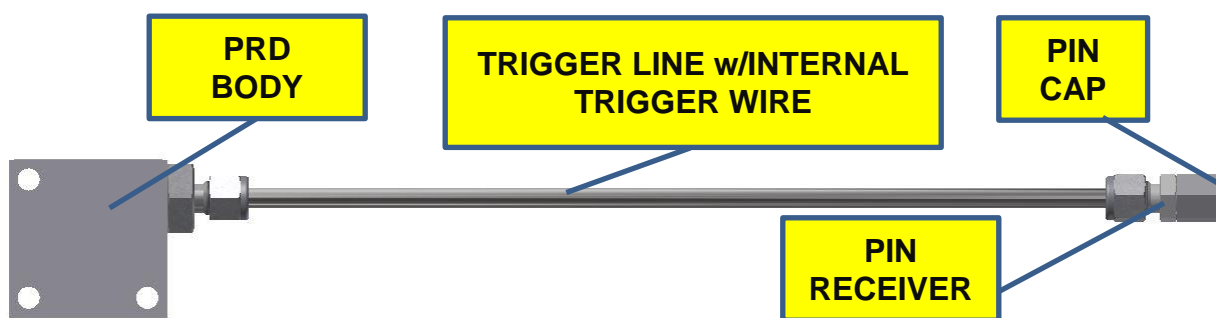
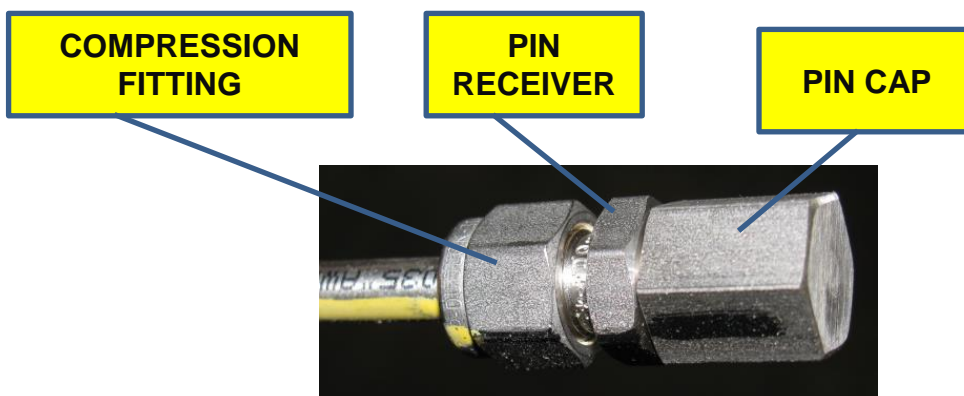


Figure 17 The pin receiver is located on the end of the trigger line away from the body.



*Figure 18 Pin receiver and pin cap on the trigger line. Remember: **DO NOT** allow the pin receiver, trigger line or wire to twist or kink since this will ruin the trigger assembly and the entire PRD must be replaced.*

1. Remove the pin cap from the pin receiver (Figures 17 and 18). Hold the pin receiver flats steady with a 9/16-in. wrench and use a second wrench to unscrew the pin cap. **DO NOT** turn the pin receiver.

COMPRESSION
FITTING

PIN
RECEIVER
FLATS

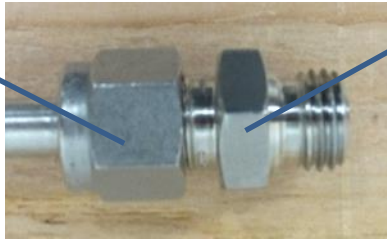


Figure 19 The pin receiver and pin cap removed from the PRD body.

2. Examine the brass taper pin, trigger wire and pin receiver (Figure 20).
 - a. **If the trigger wire is missing or loose inside the pin receiver, the entire PRD assembly must be replaced.**
 - b. If the pin and the wire is visible or can be felt in place as shown, continue....

PIN
RECEIVER
OPENING

TRIGGER
WIRE

BRASS
TAPER
PIN

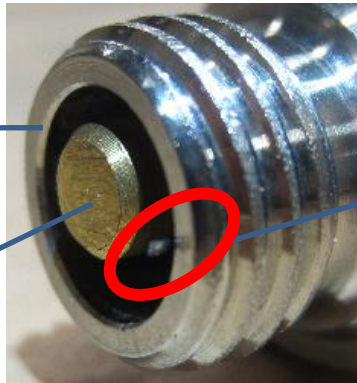


Figure 20 The brass taper pin and trigger wire (circled in red) must be visible in the receiver opening.

3. Screw the pin cap tool base onto the pin receiver. Ensure there is metal-to-metal contact between the base of the tool and the pin receiver flats as shown.

PIN TOOL
BASE TO PIN
RECEIVER
CONTACT

Pin Tool Base

Pin Receiver Flats

Pin Tool Screw

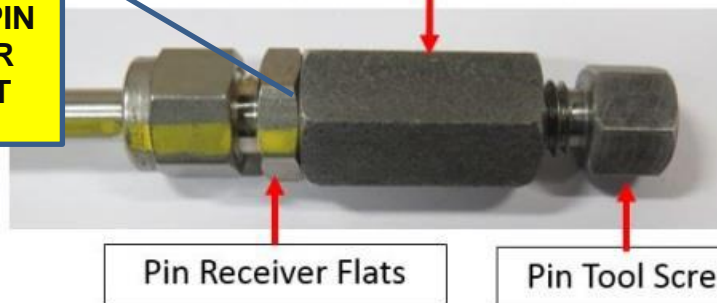


Figure 21 Make sure the pin tool base contacts the pin receiver body as shown.

4. Hold the pin receiver flats with a 9/16-in. wrench, and use a 1/2-in. wrench or socket to turn the pin cap tool screw until it contacts the base. **DO NOT turn the pin receiver flats.** As the pin cap tool screw is tightened, it pushes the taper pin into the pin receiver, wedging the trigger wire against the pin receiver. See Figure 23.

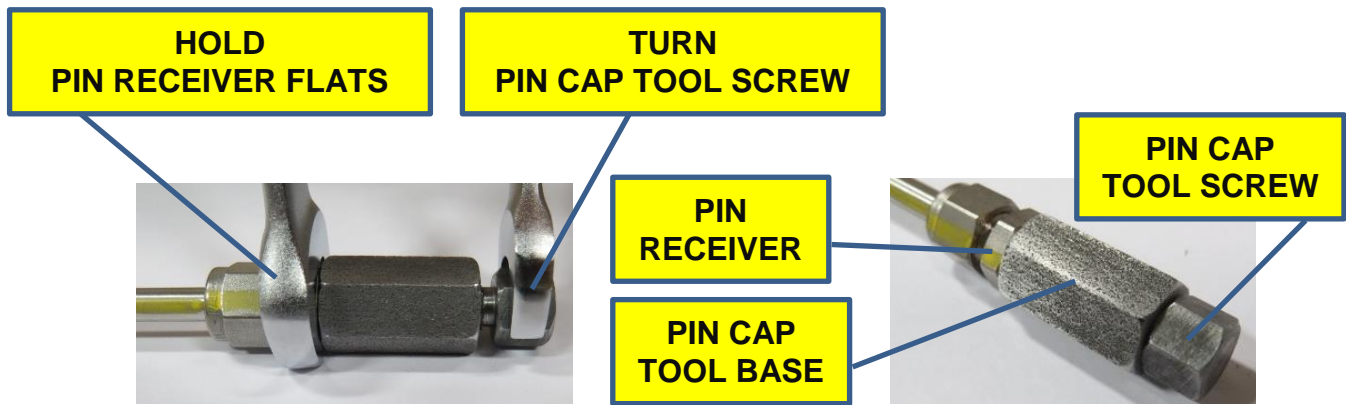


Figure 22 How to properly use the pin cap tool.

5. Remove the pin cap tool from the pin receiver.
6. The wire should remain in the receiver at about the same position as it was before the procedure started, and the pin should be pushed into the receiver as shown in Figure 23.
7. The wire can be left in place, there is no need to cut the excess length.



CAUTION

If the trigger wire is not visible, the entire PRD must be replaced. Remove and replace the PRD assembly and return the failed PRD to Agility PSG.



Figure 23 The trigger wire should remain in about the same position when the procedure started. The brass taper pin has been pushed farther into the receiver – securing the wire correctly inside the trigger assembly.

8. Place the pin cap back onto the receiver. Hold onto the pin receiver flats and the cap with two 9/16-in. wrenches or a deep socket, and tighten the compression fitting until metal-to-metal contact is achieved. **DO NOT turn the receiver flats or the cap.**



Figure 24 Pin cap attached to the pin receiver.

9. Remove any markings and re-draw a straight line connecting the tube, pin receiver, and pin cap using a paint marker. TorqueSeal may be used on the fittings.

10. Mark the top of the pin cap with a blue dot to indicate the pin is securely wedging the trigger wire in place and is suitable for use.

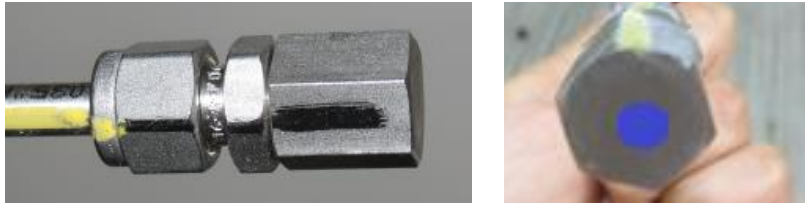


Figure 25 Left: Pin receiver and pin cap marked with a line. Right: Blue dot indicates the trigger line has been inspected and is suitable for use.

11. Use the PRD Record Form at the end of this bulletin to record pertinent data.
12. When all is well, the vehicle can be returned to service.

6. Warranty Information

1. This procedure is covered under warranty. Return the defective parts using the CRN procedure in the Warranty Manual, ENP-067, Section 3.6:
 - a. All removed components must be identified with the CRN.
 - b. The servicing dealer will have 15 days to return the defective part to Agility. The package and label containing the returned part(s) must be clearly marked with the CRN. Return parts may be shipped UPS collect to:

Agility Fuel Systems
Attn: Warranty Processing – CRN _____
1815 Carnegie Ave
Santa Ana, CA 92705 USA

- c. If requested parts are not returned to Agility per the above listed guidelines, the dealer will be charged back for all parts contained within each claim or shipped to the dealer by Agility.
2. Standard repair times (SRTs):
 - a. 2 hours per each area PRD body remove and replace.
 - b. 2 hours per each area PRD trigger line assembly inspection and repair or replace.

If you have any questions, contact Agility Fuel Systems Product Support at 949-267-7745 or support@agilityfs.com.

Agility Fuel Systems, Product Support, 1815 Carnegie Ave., Santa Ana, CA 92705 USA

Warning Messages Used in this Bulletin



DANGER

Personal injury or death may occur if procedures are not followed.




CAUTION

Damage to equipment, fuel system or vehicle is possible if instructions are not followed.

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Revision	Description	Author	Approved By	Date
--	Initial Release	W. Yoshida	A. Bhakta	7/30/15